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BLM Social Effects Project

Community Report:

Washburn, North Dakota

By:

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Prepared by:

Mountain West Research - North, Inc.
in association with Western Research Corporation

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Chapter I

Introduction

1.1 Background

This report on Washburn, North Dakota is one in a series of ten community research working papers documenting the field research conducted as part of the BLM Social Effects Project. The project was designed to improve social assessment methods by conducting a literature review and primary research to develop and support a Guide to Social Assessment.

The project had five major components. The first component, a review of the literature, provided the basis for developing an analytic framework for the assessment of social effects of energy development. The literature review was organized into eight major subject areas which included the following:

- social organization
- political organization
- economic organization
- population and demography
- family
- specific groups, including Native Americans, women, and youth
- attitudes, values, and quality of life
- mitigation

The second component, the Social Effects Conference, was held in Denver in October, 1980. The conference brought representatives of state governments, the BLM, and the academic community together to determine what the focus of the project would be. A principal

objective was to integrate the perspectives of decision-makers and sociologists and develop a common set of assessment priorities.

The third component of the project, the research component, was based on the results of the literature analysis and the Social Effects Conference. The priorities identified for study centered on changes in community social organization and indicators of community well-being.

The fourth component of the project was the preparation of a social assessment guide. The Guide is the major product of the project; to ensure its applicability, it was given a trial application under actual field conditions.

The fifth component of the project was a public involvement effort to keep interest groups informed about the project. Meetings with BLM and state officials were held to brief them on the project and to solicit comments. A periodic bulletin was distributed to inform others about the project. In addition, training workshops for BLM social scientists were held to instruct them in the use of the Guide.

1.2 Purposes of the Research Effort

The research component was included in the project to achieve four major objectives:

- To identify social effects, including those suggested by the literature review and conference, and to verify them by field investigation.
- To test the analytic framework which was developed as a basis for the Guide.

- To further elucidate the mechanisms that cause social effects to occur in energy impact areas.
- To test field procedures and the conceptual approach at a level of effort comparable to that available to BLM staff conducting social assessments.

Although there were differences in emphasis among conference participants, seven priority assessment topics were identified as being of greatest concern. These were:

1) What is the distribution of socioeconomic effects among groups in impacted areas?

2) What determines the capacity of communities to manage growth?

3) What are the attitudes of residents, both old and new, toward development?

4) What are the effects on community facilities and services?

5) What are the major lifestyle and social organization changes resulting from energy development?

6) What are effective mitigation strategies?

7) How can cumulative social effects be measured or described?

Conference participants also emphasized that BLM needed an assessment method that could handle site-specific variations and that would be compatible with the multi-phase BLM assessment and planning processes.

The research phase was to last nine months and financial resources were limited. Clearly, the research effort could not do justice to all seven of the research priorities summarized above, and it was not the intention of BLM that the research effort provide definitive answers to all social impact questions. The goal was to devise an analytic framework that would produce effective social

assessments given the BLM process and, at the same time, to learn as much about the above areas of concern as the limited resources permitted. Thus, the project team was given the seven research priorities and was asked to create an appropriate analytic framework and method for implementing the research effort.

1.3 The Analytic Framework

Several general criteria guided the development of the analytic framework. The first criterion was to be sure that the subject of the research was clearly social in nature. The BLM believed that enough was known about how to do economic and demographic assessments as well as facilities and services assessments, but that social assessments needed improvement.

Second, if possible, BLM wanted the assessment process to discriminate between social effects that could be mitigated and those that probably could not. Before BLM or state and local entities can require mitigation, the effects must be known and feasible mitigation methods must be understood.

Third, the framework needed to be implementable within a variety of resource constraints. Each assessment effort within BLM has different constraints of time, personnel and funding. Thus, the framework needed to be workable under a variety of conditions.

A final criterion was that the framework should not only enable the forecasting of effects, but also should allow for determining the significance of effects for various populations, i.e., a basis was needed to determine the meaning of social effects.

In response to these criteria, an analytic framework was developed that is based upon the concept of social organization. As used in this project, social organization is a community level concept and is discussed in detail by Wilkinson in the Literature Review (Thompson and Branch, 1981). Basically, it focuses on the social structures and processes of community social organization as the most critical social characteristics potentially affected by energy development.

For general applicability, the four processes of social organization are differentiation, extra-local linkages, stratification, and integration. These are the broad social science labels used to describe these processes. But for purposes of this report, names of the processes have been restricted to those elements of the process which appeared to be of the greatest importance for western energy assessments. These terminology changes have been made in keeping with our intent to make this research report a companion to the Social Effects Guide:

- diversity/complexity (differentiation)
- outside linkages (extra-local linkages)
- distribution of resources/power (stratification)
- coordination/cooperation (integration)

The analytic framework posits that change in the fundamental processes of social organization - complexity/diversity, outside linkages, distribution of resources/power, and coordination and cooperation - are among the most influential social effects of energy development. With the processes of social organization as a central

focus and the desire to forecast social change caused by energy development as the principal objective, the conceptual model shown in Figure 1-1 was developed as the framework which could be used to construct the BLM social assessment guide.

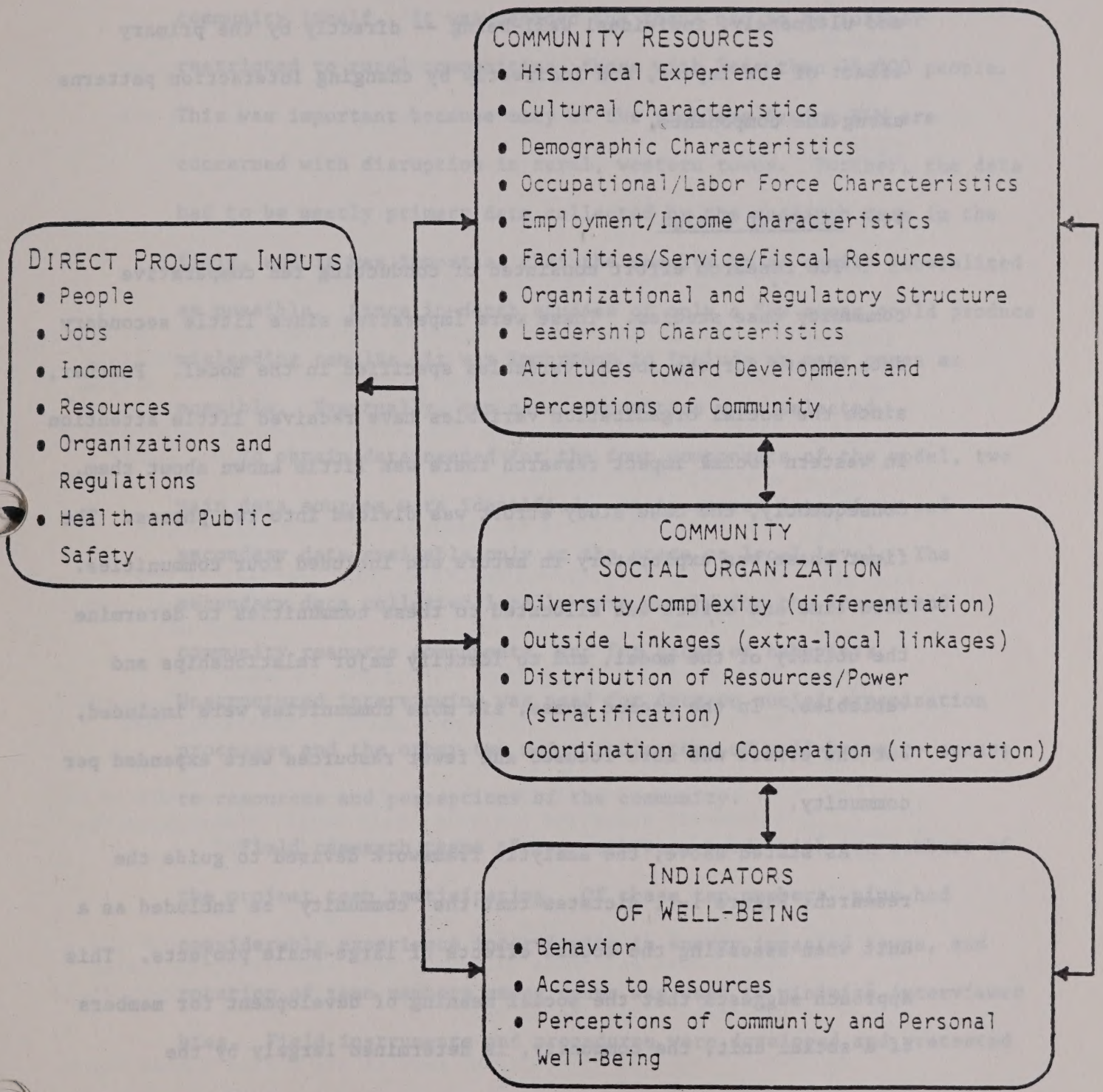
The model, Figure 1-1, has four major components: direct project inputs (projects, leasing decisions, resource management plans), the community's resources, its social organization, and the well-being of individuals in the community and their perception of the community. The normative goal of social assessment is to estimate the effects of exogenous inputs on the well-being of individuals. This involves analysis of the effect of the inputs on the resources available in a community, on the social organization of the community, and finally on the well-being of individuals in the community. It thus specifies the community as an important unit of analysis for the assessment of large-scale projects.

Based on the literature review and the BLM conference results, these four components were thought to incorporate the significant dimensions of social impact assessment. When combined with a theoretical concept of social well-being that addresses the role of the community in serving the social needs of its members, it provides a basis for examining not only the effect of the project upon social organization but also for examining the relationship between social organization and individual well-being.

A principal advantage of the model (Figure 1-1) is that it clarifies the relationship between the social assessment component and the other components of the total assessment process (e.g.,

Figure 1-1

Social Organization Model



economic/demographic, facilities and services, and natural environment). It also makes more explicit the mechanisms by which exogenous inputs modify community resources and social organization, and ultimately, individual well-being -- directly by the primary effect of the inputs, and indirectly by changing interaction patterns among the components.

1.4 Research Design

The research effort consisted of conducting ten comparative community case studies. These were imperative since little secondary data exists for the social variables specified in the model. Further, since the social organization variables have received little attention in western social impact research there was little known about them. Consequently, the case study effort was divided into two phases. The first phase was exploratory in nature and included four communities. More time and effort was allocated to these communities to determine the utility of the model, and to identify major relationships and variables. In the second phase, six more communities were included, but the effort was more focused and fewer resources were expended per community.

As stated above, the analytic framework devised to guide the research, Figure 1-1, dictates that the "community" be included as a unit when assessing the social effects of large-scale projects. This approach suggests that the social meaning of development for members of a social unit, the community, is determined largely by the

interaction of exogenous inputs with the community's resources and its social organization.

Using this approach meant the focus of the research had to be the community itself. It was decided the focus had to be further restricted to rural communities, those with less than 25,000 people. This was important because many of the problems facing BLM are concerned with disruption in rural, western towns. Further, the data had to be mostly primary data collected by the research team in the field, and it was important that the results be as easily generalized as possible. Since in-depth studies of only a few cases could produce misleading results, it was important to include as many cases as possible. Eventually, ten case communities were selected.

To obtain data needed for the four components of the model, two main data sources were identified: unstructured interviews and secondary data available only at the state or local level. The secondary data collected locally were mostly for the inputs and community resource components, and for rates of behaviors. Unstructured interviewing was used for data on social organization processes and the other two major indicators of well-being -- access to resources and perceptions of the community.

Field research teams of two each were used, with ten members of the project team participating. Of these ten members, nine had considerable experience interviewing in energy impacted towns, and rotation of team members among teams was used to minimize interviewer bias. Field instruments and procedures were developed and pretested

by a three-person team before research on the ten communities was initiated.

1.5 Selection of Study Communities

A purposeful sampling of communities in the six-state study region based on the following criteria was decided to be the most effective sampling procedure.

These criteria were:

1) The community must have had input from a major energy project between the years 1965 and 1980;

2) The energy development impacting the community had to be a mine, a processing plant (or both), or a gas and oilfield development. Employment had to total at least 300 people, since this was approximately the minimum size of projects likely to result from the BLM leasing process. (Although a preference was shown for coal development, other energy activity qualified.);

3) The community had to be outside a metropolitan area;

4) The energy development had to be past the peak of the construction phase, and preferably, construction had been completed;

5) Because of the tremendous differences in legal and organizational structure between the six states, there had to be representation from each state -- preferably two communities from each state; and

6) If possible, one of the communities in each state was to be relatively large and one relatively small (compared to the range of community sizes in the six-state area).

The sample:

From the following list of all communities in the six-state region that met these criteria, the communities indicated with an asterisk were tentatively selected for primary field research. (See figure 1-2)

Figures 1-3 and 1-4 are regional maps of the United States which show the six states with the twelve communities selected for study.

Figure 1-2

State	County	Town or Community
Colorado	Delta	Cedaredge
		Delta
		Paonia
	Garfield	Carbondale
		Newcastle
		Rifle
	Gunnison	Crested Butte
		Gunnison
		Pitkin
	Jackson	Walden
	Moffat	*Craig
	Rio Blanco	*Meeker
		*Rangely
	Routt	Hayden
Montana	Rosebud	*Ashland
		Birney
		Busby
		Colstrip
		*Decker
		*Forsyth
		Lame Deer
New Mexico	Colfax	Raton
	McKinley	Gallup
		Thoreau
	San Juan	Aztec
		*Blanco
		*Bloomfield
		Farmington
		Shiprock
	Cibola (formerly Valencia)	*Grants

State	County	Town or Community
North Dakota	McLean	Garrison
		*Underwood
		Washburn
	Mercer	Beulah
		Hazen
	Oliver	*Center
Utah	Carbon	East Carbon
		*Helper
		Price
		Wellington
	Emery	Castle Dale
		Cleveland
		Emery
		Huntington
		Orangeville
	Sevier	*Salina
Wyoming	Campbell	Gillette
		Wright
	Carbon	Rawlins
		Sinclair
		Wolcott Junction
	Converse	*Douglas
		Glenrock
	Johnson	Buffalo
	Lincoln-Uinta	Evanston
		Kemmerer
	Platte	Glendo
		*Guernsey
		Wheatland
	Sheridan	Big Horn
		Dayton
		Ranchester
		Sheridan
		Story
	Sweetwater	Green River
		Rock Springs

Figure 1-3

REGIONAL MAP

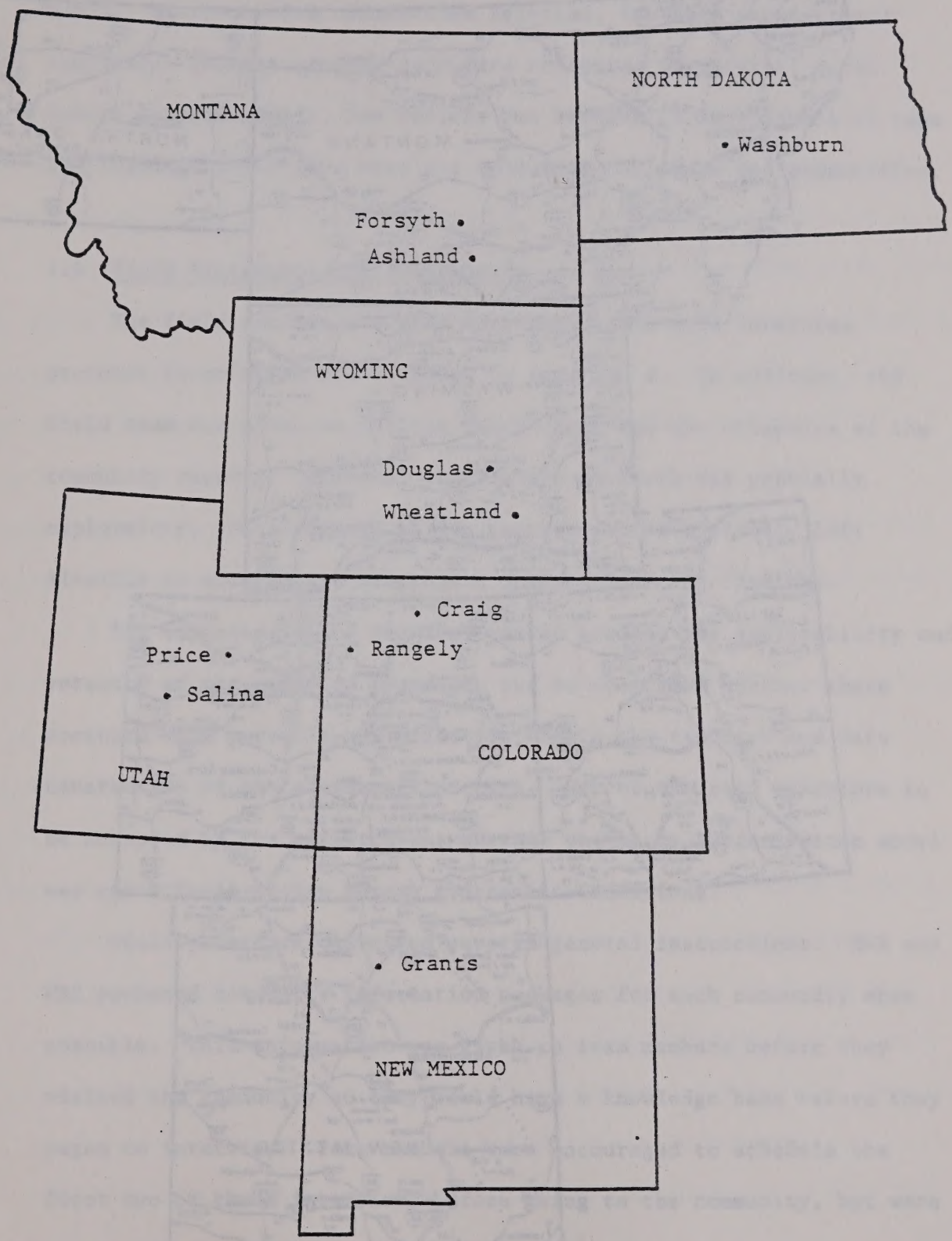


Figure 1-4

REGIONAL MAP

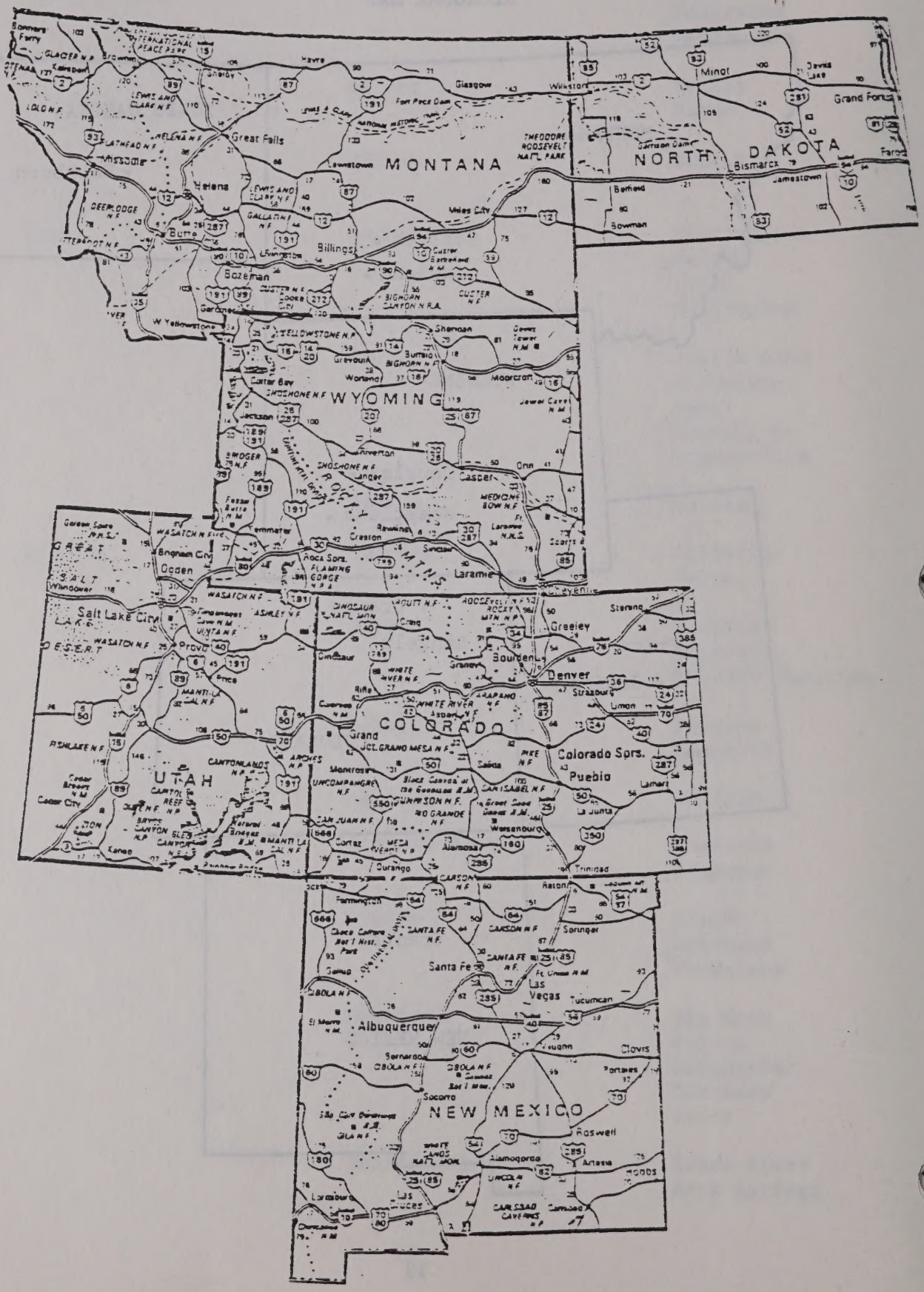


Figure 1-3 shows the location of the study communities, while Figure 1-4 is a more detailed map and includes highways and other cities and towns. Of the twelve communities selected, ten case studies were completed. Some secondary data were collected for Center, North Dakota and Bloomfield, New Mexico, but because of limitations of time and funding, interviews were not conducted for these two communities.

1.6 Field Procedures and Instruments

The field instruments used were semi-structured interview protocol forms which are included in Appendix A. In addition, the field team was given an outline which specified the structure of the community reports. However, because the research was partially exploratory, the structure of the reports was deliberately left flexible to accommodate unexpected observations and findings.

The emphasis in the research was to examine the applicability and veracity of the analytic framework and to determine whether these concepts were workable and effective within the research and data constraints of the assessment process. One of the real questions to be answered by the research was whether the social organization model was operational within Bureau Assessment Conditions.

Field procedures involved several general instructions. MWR and WRC prepared community information packages for each community when possible. This information was given to team members before they visited the community so they would have a knowledge base before they began to interview. Team members were encouraged to schedule the first two or three interviews before going to the community, but were

urged to let their interviews list develop as they worked in the community. For the first four communities, 10 to 16 man-days were allocated for field work; the remaining six communities were allocated 6 to 10 man-days.

The instruments were pretested in Gillette, Wyoming by three senior members of the team. Appropriate revisions were made and the instruments were then retested in Douglas, Wyoming, with another senior member of the team being substituted. This test was satisfactory and the revised instruments were used in the ten study communities. It needs to be stressed, however, that the instruments were not highly structured. Team members, for the most part, were highly experienced in field research and emphasis was placed on acquiring as much information as possible. This was an applied project, not a testing of a well-defined theory, and the emphasis was on increasing the information base.

Interviewers were requested to make detailed notes of interviews; the primary validity of the findings is based on concurrence of the team members. Of the ten field team participants, seven have a Ph.D. in sociology, five had worked on western social impact studies for at least five years, and four had worked in this area for over eight years.

1.7 Limitations and Concepts

Several limitations of the research and the report need to be noted.

First, because there was a high priority on applying the analytic framework to as wide a range of communities as possible, and an interest in utilizing techniques comparable to those that would be employed in the assessment process, the level of effort for research in each community was limited. This, combined with the focus of the research on delineating trends and evaluations of changes in community resources, social organization and social well-being, meant that less effort was expended verifying specific items of information than would have been the case in a more concentrated study of a single community. As a result, readers should be aware that some of the details about the communities may be in error -- for example, dates may not be precise.

Second, in order to rigorously examine the causal relationships between exogenous inputs and community response, the exogenous inputs need to be more clearly specified than this approach allowed. Ideally, an economic/demographic analysis would have been incorporated in the research. However, the specifications of the project and budget and time constraints did not allow a greater economic and demographic effort.

Third, the research reports were developed primarily as working papers to be used by the project team in developing the Summary Research Report and the Guide to Social Assessment. They have been prepared for release because it was felt that they provided valuable information on topics where research results are very scarce. Because of their genesis, the reports do not contain as extensive documentation or referencing as would have been included if they had

been prepared as final, stand alone documents, nor is the prose as polished as it might be.

Nevertheless, these limitations do not necessarily lessen the usefulness of the findings; rather they indicate areas where caution should be exercised in interpreting and applying the results.

1.8 Organization of the Report

This report is organized to correspond with the social organization model, with some accommodation to the need for orientation to the community early-on. The second chapter presents a brief summary of the history of the community and its resources. The third chapter describes the resource development activities in the vicinity of the community. Chapters four through seven discuss the changes that occurred in the social organization of the community as a result of the energy development in the following sequence: 1) differentiation (complexity/diversity), 2) stratification, 3) extra-local linkages, and 4) integration and personal interaction. Chapter Eight addresses the effects of the energy development on various indicators of well-being. Chapter Nine provides a brief overall summary.

Chapter II

Historical Analysis of the Community

2.1 Early History

McLean County was created by the North Dakota Territorial legislature on November 1, 1883 and is located between present-day Minot and Bismarck in the western central part of the state. The three largest county population centers - Garrison, Underwood, and Washburn (the county seat) - are each approximately 40 to 50 miles from either of the state's two commercial centers, Bismarck and Minot.

Elevation in McLean County ranges from a low of 1,650 feet in the Missouri River valley to a high point of 2,445 feet. The total area of McLean County is 2,334 square miles or 1.3 million acres. Eighty-six percent of this area is privately owned. State and federal ownership constitute 2.6 and 1.4 percent of the land area, respectively. The remaining 10 percent is waterways and major lakes. It is the third largest county in the state, with approximately 96 percent of all land area devoted to agricultural use.

The geographical features of McLean County are typical of the glaciated area of North Dakota -- smooth topography, moranic hills and glacial outwash. The western and southern part of the county is rolling to hilly and has numerous small lakes, marshes and undrained depressions.

McLean County is adjacent to Lake Sakakawea (Garrison Reservoir), one of the four largest reservoirs in the United States as of January, 1963. It was formed by a dam on the Missouri River south of Garrison,

North Dakota, and west of Riverdale. The reservoir has 20 million acre-feet of usable storage volume and is used to regulate the flow of the Missouri River for flood control, irrigation, navigation, power generation, and recreation purposes.[1]

It is believed the first human inhabitants of North Dakota came from Asia on a land bridge across the Bering Strait. Long ago these unknown residents left turtle effigies marked out with boulders on hillsides and "writing rocks" whose messages are still a mystery. The Mandans moved into North Dakota around 1100 A.D. They lived in villages of earthen lodges along the Missouri River. Here they grew gardens of squash, beans, corn and pumpkin. Like the Hidatsa and Arikara who came later, they were agricultural people. The Mandans grew famous, in Lewis and Clark's words, as the "most friendly, well-disposed Indians inhabiting the Missouri."[2]

The Lewis and Clark expedition was the first American party to cross the state, traveling up the Missouri River by keelboat in 1804. The expedition wintered near the Mandans in the Washburn area. There they met Sacajawea, the famed "Bird Woman", who would lead them to the Pacific Ocean. The site of Fort Mandan, just north of Washburn, still exists today as a popular historical attraction.

The Missouri River played a primary role in the formation of the first white settlement in McLean County. The Missouri acted as an artery of commerce, transportation, and communication beginning with the early fur traders and Indians. With the coming of the steamboat era around 1860, many settlements originated simply as wood huts

erected as fuel stations for steamboats. From such settlements, river towns such as Washburn (1880) emerged.

When the steamboat linked Bismarck with McLean County, large numbers of people moved into the area. As the population increased, settlers moved farther inland from the river, attracted by the rich farmland.

The next big step in the settlement of McLean County was the coming of the Northern Pacific and Great Northern railroads, which pushed across the state in the 1870's and 1880's and opened up millions of acres to settlers.

William Washburn of Minneapolis, Minnesota, one of the founders of General Mills, had much to do with the development of McLean County. In 1875 the "Minnesota Patent Flour" was developed. With the increased demand for wheat, Washburn and other flour millers found North Dakota an important source of supply.

Washburn was not only interested in North Dakota wheat but also speculated in land in McLean County. He purchased large tracts of land and made them attractive for development by building a railroad network throughout the area.[3]

These times of rapid development characterized an era commonly known as the "Great Dakota Boom". During this time, from 1878 to 1890, the state's population increased 1,000 percent. Not only did settlers buy land granted to the railroads, but homestead rights on federal lands also were staked.

By 1890, however, the Dakota Boom "busted", due primarily to severe drought and economic depression. Many farmers lost both their

money and their faith. This marked the end of the "last agricultural frontier." The largest number of agricultural settlers who survived the hardships of the time came from Norway and Canada. Germans and German-Russians were other important ethnic groups. Some came by way of Iowa, Wisconsin, and Minnesota before finally homesteading in North Dakota. This strong ethnic heritage is still prominent in McLean County.

In the late 1800's, North Dakota and McLean County saw the beginning of lignite mining. At this time, efficient commercial uses of low grade lignite were not in existence, so the bulk of production went to small-scale uses in home heating and by the railroad. William Washburn acquired railroad land grants near Wilton by 1900 where he developed one of the largest underground lignite mines in the world. From the mid to late 1920's, several strip mines also were developed in McLean County. Production showed a slow increase until 1940 when it began to fall off as the railroad began to switch to other fuels.

The construction of the Garrison Dam from the late 1940's to the early 1950's drew construction workers to the area as did the construction of Intercontinental Ballistic Missile (ICBM) sites in the mid 1960's.

2.2 Population and Demographic Characteristics

McLean County's population from 1920 to 1980 is presented in Table 2-1. Early agricultural and commercial growth brought McLean County's population to 17,991 by 1930. Subsequent crop failures and

Table 2-1

Population of McLean County, North Dakota, 1920-1980

Year	Population
1920	17,266
1930	17,991
1940	16,082
1950	18,824
1960	14,030
1970	11,251
1980	12,288

Source: U.S. Department of Commerce, Bureau of the Census, Census of the Population, 1920-1980.

dust storms bankrupted many area farmers and caused a notable population decline from 1930 to 1940.

During the late 1940's McLean County's population began to increase again due primarily to the construction of the Garrison Dam from the late 1940's through the early 1950's. By 1950 the county population was back up to 18,824. When Garrison Dam was closed in 1953, Lake Sakakawea, part of the present-day boundary between McLean and Mercer counties, was formed. The 400 megawatt Garrison Hydroelectric Station began operating in 1956, and since then its capacity has been expanded.

The effect of the development of this water resource has been to reduce fertile agricultural acreage. The lake covers 368,000 acres of rich river bottomland. The Mandan, Arikara, and Hidatsa Indians on the Fort Berthold Reservation lost 156,000 acres. This was roughly 25 percent of the land area of the reservation, but over 90 percent of the economic base and settled land. In addition, silt deposits have adversely affected agricultural land.

Although the development of the Garrison Dam reduced agricultural land, it was responsible for bringing a construction work force into the region. Thus, the expected decline in population in rural McLean County between 1940 and 1950 was temporarily prevented.

In the late 1970's there was concern over the marketing of Missouri River water by the federal government for industrial purposes, such as the development of coal-fired electrical generation plants or coal gasification plants. The concern centered around two issues: 1) federal control as opposed to state and local control of

water resources and 2) the loss of water that could be used for agricultural purposes.

Another significant recent development in the impact region has been the development of ICBM sites. Missile sites were located in both McLean and Ward counties in the early to mid-1960's. In addition to the construction work force that entered the impact region, the Air Force base at Minot in Ward County is the duty station for the personnel manning the missile sites. McLean County experienced a temporary population influx during the construction phase in the early 1960's.

However, from the late 1950's through 1970, the population declined once again. This decline was largely due to the nationwide trend toward fewer and larger agricultural operations caused by low farm prices and improved farming technology. This decline went unabated, despite the fact that McLean County became a site for U.S. missiles during the 1960's and experienced a temporary population influx during that period. Population increase from 1970 to 1980 was related to energy development and will be discussed in the next chapter.

Age and income distributions for McLean County and North Dakota residents as of 1970 are given in tables 2-2 and 2-3, respectively. They show that, on the average, McLean residents were older and had lower income levels than the average for the state in 1970. Table 2-4 provides per capita income for McLean County and the State of North Dakota from 1970 to 1980. As is evident, per capita income for McLean

Table 2-2

Age Distribution for McLean County and North Dakota Residents, 1970

	Percentage of Population	
Age Group	McLean County	North Dakota
0-14	30.0%	30.1%
15-24	13.9	18.4
25-34	8.9	10.6
35-44	10.0	10.4
45-54	13.0	10.4
55-64	12.0	9.4
65 and over	12.1	10.7

Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population.

Table 2-3

Income Distributions for McLean County and North Dakota Residents, 1970

Income Range	McLean County		North Dakota
	Number of Families	Percentage of Total	Percentage of Total
Under $2,000	313	10.9%	6.5%
$2,000-3,999	426	14.9	12.5
$4,000-5,999	444	15.5	15.9
$6,000-7,999	540	18.9	16.5
$8,000-9,999	397	13.9	14.4
$10,000-14,999	514	18.0	21.4
$15,000-24,999	167	5.8	9.9
$25,000 and over	62	2.2	3.0
Total	2,863		

Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population.

Table 2-4

Per Capita Income for McLean County and North Dakota, 1970-1980

County/State	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
McLean County, ND	2,755	2,791	3,614	5,502	5,725	6,466	5,585	6,429	9,020	7,921	9,590
North Dakota	3,086	3,454	4,012	5,746	5,883	5,896	5,756	6,092	7,635	7,683	8,626

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, April, 1982.

County lagged behind the State of North Dakota from 1970 until 1977; since 1977 it has consistently been higher than state levels.

Since 1970 the general population decline in McLean County has been reversed by the increased development and processing of coal resources.

Surviving agricultural settlers were largely of Norwegian, German, German-Russian, and Canadian stock. These ethnic roots have persisted in McLean County with many of the recent construction-related arrivals consisting of former residents, children of former residents, or inhabitants of the surrounding region.

2.3 Employment Characteristics

Table 2-5 presents McLean County employment by industrial sector for the years 1970 to 1980. Even though the McLean County economy has been changing over the last decade, it is still primarily based upon agricultural production. The first row of Table 2-5 shows that agricultural employment is clearly the largest segment of the work force, followed by government employment. Notwithstanding a decrease in the number of employed in agriculture in keeping with the nationwide trend toward fewer and larger farming operations, farm proprietors and farm workers still account for more than one out of every four jobs in the county.

Unemployment in McLean County has historically been higher than it has in the State of North Dakota (Table 2-6). While the rate of unemployment at the end of the decade of the 1970's seems to have moderated, it still remains above the state level.

Table 2-5

McLean County, North Dakota - BEA Employment, 1970-1980

Category	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Agriculture	1,758	1,734	1,661	1,623	1,603	1,576	1,575	1,533	1,549	1,524	1,515
Mining	23	19	6	28	24	15	50	66	123	160	198
Construction	179	202	183	257	228	300	555	1,083	1,667	1,140	386
Manufacturing	37	47	50	46	51	45	42	42	53	65	55
Transportation and Public Utilities	72	67	70	74	75	96	109	181	226	329	355
Trade	478	484	475	508	537	571	628	654	715	733	724
Finance, Insurance, and Real Estate	41	42	61	64	69	74	76	87	87	100	108
Services	523	535	452	463	493	534	561	593	644	679	655
Government	966	947	926	900	909	868	805	772	796	800	798
Miscellaneous	498	471	462	469	522	459	456	493	-495	546	558
Total Employment	4,575	4,548	4,346	4,432	4,511	4,538	4,857	5,504	6,355	6,076	5,352

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, April, 1982.

Table 2-6

Rate of Unemployment for McLean County and North Dakota, 1970-1980

County/State	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
McLean County, ND	*	*	8.7	9.1	7.5	6.9	7.7	7.2	5.2	4.6	6.3
North Dakota	4.7	5.4	4.9	5.1	4.6	5.2	5.1	5.5	4.3	4.0	5.0

*Information unavailable.

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, April, 1982.

2.4 Resource Base and Lifestyle

McLean County's resource base is generally restricted. County revenue is derived mainly from agricultural enterprises and from the development of local coal reserves. The development of the county's commercial sector still reflects the dominance of agricultural interests even in the face of recent energy development. The limited nature of McLean County's resource base does not seem to lend itself to the hoped-for attraction of industrial growth that was often verbalized by local citizens.

McLean County residents exhibit notable homogeneity of lifestyle; there do not appear to be striking inequities of wealth. Patterns of dress, consumption, and recreation among the residents also tend to be similar.

2.5 Organizations and Leadership

Major organizations are agricultural organizations, local chamber of commerce, some civic clubs, and the local churches. The number and type of organizations do not seem to have changed greatly over the last four decades.

Leadership in both the county and municipalities reflects the dominance of agricultural enterprises or businesses dependent upon agricultural trade. Local elected officials are, for the most part, either directly engaged in agricultural pursuits, proprietors of businesses who depend on and cater to agricultural interests, or proprietors of businesses who also maintain interests in family agricultural endeavors.

The general agricultural orientation of county and community leadership seems to engender considerable interest in preserving the character and integrity of the local community as well as a generally conservative approach to growth management. Good cooperation seems to exist between county, municipal, and school district leaders.

Chapter III

Chronology of Major Events During the Impact Period

3.1 Coal-Related Activities in the Area

The focus of this report is the impact of the construction and operation of the Coal Creek Station, a coal-fired electrical generating facility, on the surrounding area. Even though the Coal Creek Station was the only energy project within McLean County from 1970 to the present, in order to understand the impacts of the station, it needs to be placed in the context of other coal-related activity in the region. There have been eight coal-fired power plants in operation or under construction since the mid-1960's in North Dakota. The Coal Creek Station is located in McLean County. Square Butte and Milton R. Young are located in Oliver County. Stanton, Leland Olds, Coyote, Antelope Valley, and ANG are located in Mercer County. These plants are both consumer owned and investor owned. Table 3-1 presents details on owners, development dates, and capacity.

Table 3-2 provides information on peak quarter construction work force projections for the three electrical generation plants and the ANG coal gasification plant which are under construction. The table illustrates graphically the additive impact effects of Coal Creek and the other three projects, as well as the phasing of the construction work force by project. The combined construction work force for the plants ranges from 230 in 1975 to 3,873 in 1982.

The region is well suited for the development of coal-fired electric generating facilities because both coal and water are found

Table 3-1

Coal Conversion Facilities in McLean, Mercer and Oliver Counties, North Dakota

Facility	Owner	Development Date: Start Construction	Development Date: Fully Operational	Capacity
Stanton Plant	United Power Association	1964	1966	172 MW
Leland Olds Station, Unit 1	Basin Electric Power Coop.	1963	1966	212 MW
Milton R. Young	Minnkota	1967	1969	235 MW
Leland Olds Station, Unit 2	Basin Electric Power Coop.	1971	1975	440 MW
Square Butte	Square Butte Power Coop.	1973	1977	440 MW
Coal Creek	United Power Association/			
Unit 1	Cooperative Power Association	1975	1979	500 MW
Unit 2		1976	1980	500 MW
Coyote	Consortium[1]	1977	1981	410 MW
Antelope Valley Station	Basin Electric Power Coop.			
Unit 1		1978	1982	438 MW
Under Construction 1981				
Unit 2		1980	1983	438 MW
ANG Coal Gasification Plant	American Natural Gas/ People's Gas Company			
Phase 1		1980	1983	137.5 MMCFD
Proposed				
ANG Coal Gasification Plant Phase II		1985	1988	137.5 MMCFD

[1] Montana-Dakota Utilities Co.; Otter Tail Power Company; Minnkota Power Cooperative; Minnesota Power and Light Co.; and Northwestern Public Service Company.

Source: Adapted from Mercer County Socio-Economic Impact Mitigation Assessment, Vol. IV, Inter-Industry Technical Assistance Team, 1979; and the McLean County Growth Management Plan, Lewis and Clark 1805 Regional Council for Development, August 31, 1980.

Table 3-2

Peak Quarter Construction Work Force Requirements at Energy Conversion Facilities, 1975-1984

Plant	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Coal Creek	230	602	1,542	2,015	1,475	1,000	100			
Coyote			450	799	1,020	866	260			
Antelope Valley Station				448	885	956	814	834	350	
ANG Coal Gasification						753	2,264	3,039	2,361	150
Total	230	602	1,992	3,262	3,380	3,575	3,438	3,873	2,711	150

Source: Adapted from Mercer County Socio-Economic Impact Mitigation Assessment, Vol. IV, Inter-Industry Technical Assistance Team, 1979; unpublished estimates by UPA-CPA officials, 1979.

in abundance. The nature of the coal is important in one respect. The local coal reserve has a low BTU and high water content which makes it uneconomical to ship out of the region. Such conditions predispose the location of generating facilities near the coal deposits. Table 3-3 lists the lignite mines that supply coal conversion facilities in the region. The work force associated with the construction and operation of these mines provides additional impacts to the six county region.

Because of the number of construction projects in the region, socioeconomic impacts result not only from the Coal Creek Station but from other projects as well. As illustrated in Table 3-4, McLean County shows a greater increase in population between 1975 and 1980 (construction period for Coal Creek) than from 1970 to 1975; while Oliver County, where plants became operational in 1970 and 1977, shows a relatively small population increase from 1975 to 1980.

Because of the temporal and geographic proximity of energy developments in the region, there was considerable transfer of the work force from one project to another. Workers were able to reside in any of a number of locations and still have access to employment. This factor often shifted the impacts of a particular plant beyond the county in which it was sited. Additionally, the urban areas of Bismarck-Mandan and Minot provide locational choices for the construction work force because they are within reasonable commuting distance. Thus, socioeconomic impacts, such as employment, population, housing, public fiscal impacts, and retail services and facilities, are found throughout the six county region.

Table 3-3

Lignite Mines Associated with Coal Conversion Facilities in Region

Mine	Owner	Construction Date	Facility Supplied	Yearly Production (Million tons)	Full Production Schedule (Year)
Operation					
Indianhead	North American Coal Company (NACCO)	--	Stanton Plant	1.05	1967
Glenharold	Consolidation Coal Co.	--	Leland Olds Plant	3.80	1967
Center	Beukol-Noonan, Inc.	--	Milton R. Young Plant	4.20	1978
Beulah	Knife River Coal Mining Company	--	MDU Heskett Plant	2.00	1922
Falkirk	The Falkirk Mining Co. (Subsidiary of NACCO)	1976-1980	Coal Creek Complex	5.60	1980
Beulah	Knife River Coal Mining Company	1979-1981	Coyote Plant	2.20	1982
(Under Construction)					
Coteau	The Coteau Properties Co. (Subsidiary of NACCO)	1978-1985	Antelope Valley Station	5.20	1984
Coteau	The Coteau Properties Co. (Subsidiary of NACCO)	1980-1988	ANG Coal Gasification Plant	9.08	1988

Source: Adapted from Mercer County Socio-Economic Impact Mitigation Assessment, Vol. IV, Inter-Industry Technical Assistance Team, 1979.

Table 3-4

Recent County Population Growth

	1970	1975	1980	Percent Change 1970-75	Percent Change 1975-80
McLean	11,251	11,500	12,288	+ 2.2	+ 6.85
Burleigh (Bismarck)	40,714	47,100	54,811	+15.6	+16.37
Morton (Mandan)	20,310	21,800	25,177	+ 7.3	+15.49
Mercer	6,175	6,400	9,378	+ 3.6	+46.5
Oliver	2,322	2,400	2,495	+ 3.3	+ 3.96
Ward (Minot)	58,560	61,200	58,392	+ 4.5	- 4.59

3.2 Description of Development

3.2.1 Project Description

The Coal Creek Station, a 1,000 megawatt complex owned by United Power Association and Cooperative Power Association (UPA-CPA), is located in McLean County, 50 miles north of Bismarck, midway between the communities of Washburn and Underwood.

Table 3-5 contains key data on the Coal Creek Station. The $1,246 million plant was started in 1975 and was fully operational by 1982.

The United Power Association and Cooperative Power Association made the decision to build the Coal Creek Station in 1973. The decision was prompted by the need to provide additional capacity to meet increasing needs of UPA-CPA member systems in Minnesota and Wisconsin.

Major factors considered in selecting the 2,500 acre site between Washburn and Underwood were (1) availability of lignite coal in the immediate area and (2) availability of water from the nearby Missouri River. Selection of the McLean County site necessitated construction of 435 miles of 400KV power lines to Delano, Minnesota.

Ground breaking for the Coal Creek Station was originally scheduled for the fall of 1974. However, several factors (including a permit delay and bad weather) combined to set back the start of construction to May, 1975. Once construction began, another major delay was experienced due to the failure of one supplier to provide tubing on a timely basis. Efforts to make up for the last delay through the use of two ten-hour shifts did not work satisfactorily.

Table 3-5

Key Facts - Coal Creek Station

1.	Capacity:	1,000 megawatts (two 500 MW units)
2.	Capital investment:	
	- power plant	$ 711 million
	- transmission lines	320
	- coal mine	215
	Total	$1,246 million
3.	Ownership:	United Power Association (44 percent) and Cooperative Power Association (56 percent)
4.	Timing:	
	- construction start-up	May, 1975
	- construction peak	July, 1978
	- completion of Unit #1	August, 1979
	- completion of Unit #2	Fall, 1982
5.	Fuel source:	
	- BTU content of coal	6,600 BTU's/pound
	- type of mining	surface mining of two seams; overburden varies from 30 feet to 150 feet
	- annual output	5.6 million tons (all to Coal Creek Station)
	- size of reserves	310,000,000 tons
	- mine operator	Falkird Mining Company, a wholly-owned subsidiary of North American Coal Corp.
6.	Customers:	34 rural electric cooperatives in Minnesota and Wisconsin
7.	Architect-Engineer	Black & Veatch
8.	Employment:	
	- peak construction (1978)	2,113 (plant only)
	- permanent (plant)	230
	- permanent (mine)	300

Sources: United Power Association, Annual Report, 1978, Elk River, Minnesota: 1979, pp. 8, 10-12, 27; Cooperative Power Association and United Power Association, The Coal Creek Project, undated, pp. 2-4.

The Falkirk Mine is a "captive" mine of the Coal Creek Station, but operated by the Falkirk Coal Company, a wholly-owned subsidiary of the North American Coal Corporation. The Falkirk Mine includes 35,000 acres containing recoverable reserves of 310 million tons. With peak production of 5.6 million tons per year, the mine has sufficient reserves to supply the Coal Creek Station for 55 years.

The lignite in the Falkirk Mine is in two seams. The upper seam, which averages eight feet in thickness, contains 225 million tons. Up to 150 feet of overburden must be removed to get at the first seam. The second seam is approximately 30 feet below the first seam, and contains 85 million tons of coal.

In order to strip the overburden, the mine will have two 14 million pound draglines, each with a 105 cubic yard bucket. Large 160 ton trucks are used to haul the coal to the conveyor. When the mine reaches full capacity in late 1980, it will employ 300 persons.

The mine workers are not unionized. Wages average $10 to $12 per hour plus fringe benefits. This translates into $20,000 to $24,000 per year for this portion of the work force. It is also interesting to note that only 20 percent of the total work force were living in trailer homes, while 45 percent were living in permanent conventional housing. This high percentage of workers living in conventional housing suggests that a high percentage of the work force did not come to North Dakota to work on the Coal Creek Plant but were already residing in the surrounding area and were close enough to commute to the plant without moving their residence. This assertion is further

confirmed by the differential population growth in area counties displayed in Table 3-4.

The total population in McLean County and Washburn for the years 1970-1980 is given in Table 3-7. The county population growth generally parallels work force increases for the Coal Creek Station while Washburn's population increase seems to peak a year or so after the work force peak.

Employment by major SIC categories for McLean County is given in Table 2-5. As is indicated in the table, substantial employment growth occurred during the construction period in the following local service sectors: wholesale and retail trade; finance, insurance, and real estate; and public services.

3.2.2 Employment and Population

The total Coal Creek Station work force at the beginning of construction was approximately 266 and increased to a peak of 2,398 in 1978. The current operational work force for both the power plant and the mine is about 530 persons (Table 3-6).

In an attempt to overcome delays in the scheduled construction of the plant, two ten-hour shifts were implemented. As a consequence, actual employment significantly exceeded employment projections made early in the project (Table 3-6).

Characteristics of the construction work force were validated by two independent surveys conducted during the construction.[4,5] Both surveys estimated local workers to be about 61 percent of the work force. A local worker was defined as one who lived at his present

Table 3-6

Projected and Actual Peak Employment by Year for the Coal Creek Station, 1975-1982

	Projected Employment[1]			Actual Employment[2]		
Year	Construction	Operation (includes mine)	Total Work Force	Construction[3]	Operation (includes mine)	Total Work Force
1975	225	35	260	230	36	266
1976	720	110	830	602	48	650
1977	925	190	1,115	1,542	200	1,742
1978	980	290	1,270	2,113	285	2,398
1979	550	393	943	1,787	329	2,116
1980	50	448	498	1,000	430	1,430
1981	0	485	485	100	437	537
1982	0	485	485	0	530	530

[1] Estimates developed by UPA-CPA officials and reported in N.E. Toman, et al., Economic Impacts of Construction and Operation of the Coal Creek Electrical Generation Complex and Related Mine. Fargo, North Dakota: North Dakota State University.

[2] Unpublished data and estimates (for 1980 and 1981) by UPA-CPA officials, 1979.

[3] To account for UPA and Black & Veatch personnel at the site, the following estimates were added to the "Contractor Labor Force" provided by UPA: 1975-20, 1976-22, 1977-79-24.

Table 3-7

Population Change in Washburn and McLean Counties and North Dakota, 1970 - 1980

Year	Washburn	McLean County	North Dakota
1970	804	11,251	617,761
1971	807	11,700	627,000
1972	810	11,600	631,000
1973	813	11,500	632,000
1974	817	11,500	634,000
1975	819	11,500	638,000
1976	1,323	12,525	645,000
1977	1,397	13,285	649,000
1978	1,690	13,673	651,000
1979	1,745	13,429	652,000
1980	1,767	12,383	652,717

Sources: North Dakota Division of Vital Records, 1982.

address prior to the start of construction in May, 1975. Of those local workers, 23 percent lived within McLean County and 77 percent lived outside McLean County. Of the 39 percent of the work force who were non-local, roughly one-half lived in McLean County. The local workers tended to have larger families than did the non-local workers.

In addition to the fact that over 60 percent of the work force was already living in their present residences before the Coal Creek plant began construction, over 60 percent of the work force was not residing in McLean County. Thus, this group would not be expected to cause a new increase in indirect or service-induced population as this effect probably already has taken place.

On the basis of 40 hours per week, 50 weeks per year, the typical construction worker earned $20,000 to $27,000 in 1979. This yearly earning would place the typical construction worker in the top 8 percent of McLean County's 1970 income distribution (Table 2-3).

Journeyman wages rates in several of the crafts were estimated to be as follows:

Boilermakers	$13.50/hour
Bricklayers	10.80/hour
Carpenters	10.40/hour
Electricians	10.80/hour
Ironworkers	11.90/hour
Laborers	7.47/hour
Millwrights	11.50/hour
Pipefitters	13.00/hour
Sheet metal workers	10.80/hour
Insulators	11.20/hour
Operating engineers	10.30/hour

In addition, different unions had a variety of subsistence plans ranging from zero to $30.00 per day for members working 30 miles or

more from Bismarck. It was estimated that the average daily subsistence payment was $20.00.

Approximately 75 percent of the operating work force currently live in McLean County with an estimated average annual salary of $19,400 per employee. Again, this places the average Coal Creek Station employee very near the top of McLean County's 1970 income distribution (Table 2-3) with an income greater than 92 percent of McLean County's population.

3.3 Chronology of Change

The chronology of change in McLean County associated with the construction of the Coal Creek Station could be roughly divided into three phases.

3.3.1 Early Phase - Preparation and Planning (1973-1976)

This initial time period was characterized by reaction to the proposed plans in terms of discussion, but accompanied by little planning for growth. Much of the lack of concerted action during this phase apparently stemmed from a basic local fiscal conservatism that was fueled by distrust of numerous conflicting population projections. During this initial phase, respondents indicated that management of the Coal Creek Station did not exhibit great interest in accepting responsibility for local impact or in responding to local needs until local government began to press its interests through various local and state zoning/permitting regulations.

According to some respondents, local political leaders felt that they had little control over the conditions of the permit to construct the power plant because the state issued the permit. The county and municipalities felt powerless in forcing UPA-CPA to mitigate anticipated impacts.

3.3.2 Middle Phase - The Construction Phase (1977-1979)

The total work force increased from 650 in 1976, to 1,742 in 1977, to a peak of 2,398 in 1978, and then declined slightly to 2,116 in 1979. While these total work force levels are impressive, it must be remembered that, according to a construction worker survey, only about 35 percent of the construction work force was residing within McLean County. Because population impacts on McLean County were not in the magnitudes predicted, the accommodation process was relatively orderly and did not generally require major expansion of public service infrastructure. The three areas requiring expansion were public schools, housing, and law enforcement. Because of the local leaders' fiscal conservatism, the tax structure in North Daktoa, and the fact that there had been boom-bust economic cycles in the area previously, care was taken to avoid expanding local infrastructure too quickly and too far.

3.3.3 The Leveling Phase (1980-1982)

This third phase has seen the general cessation of construction of the Coal Creek Station and the stabilization of the operational work force of the power plant and mine. With a general decline in

commercial activity, local leaders are looking forward to similar construction projects in the surrounding area or the arrival of additional industry to bolster a sagging economy.

McLean County mitigation needs have been met largely through federal and state assistance in the form of loans or grants. To date, there have been few, if any, direct mitigation funds provided by companies. The Falkirk Mining Company has agreed to mitigate disruption to Underwood's water supply caused by the expansion of mining activities. The agreement proposes the construction of a well and pipeline to present storage facilities in Underwood.

Existing tax laws in North Dakota put a strain on counties and communities undergoing development related to power plant construction. Specifically, the state abolished property taxes on coal-fired electric generating plants in 1975 and instituted the Coal Conversion Facilities Tax. This tax allows for the taxation of .25 mills per kilowatt of production for plants over 120,000 kilowatt capacity. Of this tax, 65 percent goes to the state's general fund and 35 percent goes to the host county. Of the county's share, 30 percent is distributed to all incorporated cities and towns on the basis of population, 30 percent is distributed to the school districts on the basis of enrollments, and the remaining 40 percent goes into the county's general fund. The land owned by the power plant is still taxable as real property.

The problem with this tax is that the facility must actually begin production before the tax is paid. Thus, communities such as

Washburn and Underwood must cope with increased demand for services prior to the receipt of tax revenue from this source.

The major source of support for energy impacted communities in North Dakota is the Coal Impact Office. This office is funded through the severance tax on coal. (The Coal Impact Office is now called the Energy Development Impact Office and receives money from the severance tax on coal, oil, and gas.) As of July 1982, a tax of $1.01/ton is levied on coal produced in the state (with some minor exceptions), and is distributed as follows:

35 percent - Coal Impact Office

30 percent - State General Fund

15 percent - Permanent Trust Fund

20 percent - distributed to coal producing counties on the basis of production.

Of the county share, 40 percent goes to the county general fund, 30 percent goes to the cities and towns, and 30 percent to the school districts. There is also a provision for non-coal producing counties within 15 miles of a producing coal mine to receive some tax money. In addition to the severance tax, property tax on the increased assessed valuation of the land is levied. The severance tax produces the same problem as the Coal Conversion Facilities Tax. That is, no revenue is received until the facility begins production. Because of this delay, McLean County, Washburn, and Underwood received necessary front-end money from the Coal Impact Office (Energy Development Impact Office).

Problems have arisen when the Coal Impact Office has funded positions and then decided not to continue to fund them in the future, causing problems of continuity within departments but overcoming, to some extent, problems with front-end financing. Because communities have had to apply to the Coal Impact Office for monies to mitigate impacts in the past, there was some concern in McLean County that political entities were at the mercy of the Coal Impact Office. Adding to this problem is an indication that the Impact Office wants to stop funding positions and concentrate on facilities.

Loans can also be obtained from the Permanent Trust Fund, which is funded by the severance tax and managed by the Board of University of School Lands. These two sources of funding seemed to have been the two primary sources for impact mitigation funds in McLean County.

Chapter IV

Community Differentiation

4.1 Introduction

The concept of community differentiation is a measure of complexity and diversity present in a community. An undifferentiated community is one whose social systems (i.e., occupational structure, business community, government structure, voluntary organizations) are not very complex. A differentiated community is one whose social systems are more complex or diverse, i.e., economic, religious, ethnic and cultural orgnizations are more rather than less complex.

Generally, community growth means the in-migration of people. As the size of the community swells, increased demands are made on its social systems which often require expansion, specialization and formalization. Increased complexity can be both a boon and a bane to local citizens.

Changes occurring in economic, political and social differentiation in McLean County during the period of energy development are discussed in this chapter.

4.2 Economic Differentiation

4.2.1 Employment

One of the first and most obvious changes in county differentiation as a result of the construction and operation of the Coal Creek Station was the increase in employment. Employment increased from 4,538 the year that construction began (1975) to 6,355

in the peak construction year (1978) and then leveled off to about 5,500 in the early 1980's (Table 2-5). While this 21 percent increase in overall employment from 1975 to 1980 is notable, even more interesting is the distribution of employment by industry over that same time period. Agriculture still maintained a position of dominance in the county even though it dropped from 35 percent of all employment in 1975 to 28 percent in 1980. The only other sector losing employment is government which dropped from 19 percent in 1975 to 15 percent in 1980. Other areas which showed notable gains from 1975 to 1980 were mining (less than 1 percent to 4 percent) and transportation/public utilities (2 percent to 7 percent). All other areas showed very little, if any, change in their share of total employment. With the exception of operational workers at the Coal Creek Station and its accompanying mine, there do not seem to be notable increases in the diversity of employment in McLean County.

4.2.2 Business

The county's business community did become somewhat more differentiated. In response to increased commercial demands due to the plant, some new businesses were started. Some of these were: a pizza parlor, a new motel, a racquetball court, an auto parts store, a franchised hardware store, a savings and loan association, a lumber yard, a chemical company, an auto body repair shop, a radiator repair shop, a teen center, and a restaurant. In addition to an expansion in the number and type of commercial establishments, health services were expanded with the attraction of a dentist and an opthamologist.

Some businesses also found it necessary to formalize methods of doing business. Banks in both Washburn and Underwood reported that they found it necessary to establish formal loan policies and require written applications for loans. Check cashing became more complex as identification was required and a fee was charged for the service. Banking hours were expanded to meet the changing needs of newer customers. A new bank from outside the county also opened a branch bank in Washburn.

While the construction of the Coal Creek Station provided a temporary impetus to the McLean County economy, the operations work force has not been sufficient to sustain the level of economic activity characteristic of the construction period. Local economic conditions have cooled off, as exhibited by the closing of a number of the commercial establishments that opened in response to local population increases. Local business and political leaders are exploring various means to encourage additional economic growth that would provide an additional measure of community economic stability. Washburn is in the process of establishing an economic development committee whose function will be to attract new business and industry to the area.

The construction and operation of the Coal Creek Station has had only a minor impact on the development of energy-related industries. The lack of a sizeable number of energy-related service industries has not contributed to sustained economic activity characteristic of the construction period.

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4.3 Political Differentiation

Political differentiation refers to an increase in the complexity of local government structures and political organizations. New programs or offices may be created in response to population increases. An increase in differentiation in government structures occurs through formalization of procedures or the creation of new roles or job positions.

A review of local government structure for McLean County over the last ten years shows the creation of some new positions or organizations. During the early 1970's, the positions of land use administrator and information officer were created. The position of county information officer was originally conceived as one who would facilitate the flow of information between agencies and the county, as well as encourage development. It was later decided that such a position constituted a duplication of efforts and should therefore be abolished. The position of land use administrator is still viable today.

The Regional Council for Development was formed during the impact years. The council consisted of county planners who created long-term comprehensive plans. It was suggested by this group that the position of information officer be created by McLean County.

The county sheriff expanded the size of his department from fewer than 20 to 52 during the construction of the Coal Creek Station. There was increased specialization of law enforcement functions as the force was divided between public policing functions and plant security functions. Individual enforcement officers were hired specifically

for one function or the other. The Sheriff's Department also took over policing for the town of Washburn. The McLean County Sheriff's Department provides policing for several of the small towns in the county. Several of these positions are paid for by the Coal Impact Office and, therefore, the future of these positions is uncertain.

The Sheriff's Department made procedural changes in response to increased population demand. The main procedural change, instituted during peak construction, was putting two men in each patrol car at night to handle potential problems with drinkers leaving bars.

The department also started providing vehicles to the sheriff and deputies, who had previously been required to furnish their own vehicles. The department also found it necessary to add onto the existing jail in order to provide segregated facilities when needed. The expansion of the jail was made possible by a grant from the Coal Impact Office and some county money.

Increases in political differentiation in Washburn were substantial. City manager and planner positions were created along with a position for auditor in response to increases in the municipal population. Recently these positions have changed somewhat to city manager/auditor and planner. Additionally, a qualified water treatment person, a qualified sewer treatment person, a full-time assessor and two full-time maintenance people were hired. In the past, a few city employees did everything from "assessing houses to catching dogs". Associated with this increased specialization is the formalization of rules and procedures, which occurred through the implementation of planning and zoning rules and regulations.

A new city hall was constructed in 1979 to accommodate the expanded city staff. The new building was financed by a grant from the Coal Impact Office (25%) and a loan from the State Land Board (75%).

Political differentiation also increased in Underwood in response to development, although to a lesser extent than in Washburn. With a grant from the Coal Impact Office, the city hired a coordinator for impact planning purposes. Underwood has also just completed construction of a new city hall.

4.4 Social Differentiation

While communities in McLean County have experienced population growth as a result of the construction and operation of the Coal Creek Station, the basic patterns of social relations seem to have remained intact.

Three groups were formed as a direct or indirect result of the Coal Creek Station and associated coal mine. The first group was a committee to recruit doctors to the area. The second group was an art association, formed by newcomers. The third group, an economic development committee, was in the process of formation. These groups were responses by the local community to deal with perceived needs.

In general, the population influx increased the number of plant-related individuals and added more young individuals to the age structure but did not introduce other minority groups into the social system. Many of the construction work force and most of the operational work force were former residents of the area or were

children of former or present residents. In-migration of former residents provided additional population with similar values, backgrounds and lifestyles.

Chapter V

Community Stratification

5.1 Introduction

Stratification refers to access to resources in a community and the distribution of power and decision-making.

The literature on stratification indicates that industrialization or rapid growth can bring about marked changes in existing stratification systems. The opportunity to dispose of property necessary to industrialization and the attendant population growth can concentrate wealth in the hands of new groups. The in-migration of significant numbers of people can erode the political power of traditional leaders and increase political power exercised by representatives of in-migrating groups. Access to goods and services can also shift. Changes in the stratification system in McLean County are discussed under the general topics of political stratification, economic stratification, and social stratification.

5.2 Political Stratification

The construction and operation of the Coal Creek Station has had little discernible impact on the political structure of McLean County. There have been few changes at either the elective or appointive levels of the county. Some specialization or professionalization has been evident in the municipal governments with the introduction of planners, auditors, and water/wastewater technicians. The general perception is that some change has occurred at the municipal level but

not at the county level. Energy development has not yet spawned the emergence of identified factions seeking representation of common interests through the political process. For the most part, elected officials still represent long-time, agricultural interests and commercial interests. Generally, newcomers seem satisfied with the current elected officials.

5.3 Economic Stratification

Economic stratification in McLean County does not seem to have been greatly altered as a result of recent energy-related development. Employment increases resulting from the construction and operational work force have added some occupations to the class structure, with mining increasing from .003 percent of total employment in 1975 to 4 percent of total employment in 1980 and public utilities increasing from 2 percent in 1975 to 7 percent of total employment in 1980. Traditionally dominant sectors such as agriculture, trade, services, and government, continued their dominance after the plant came into operation (see Table 2-5).

Higher wages in the mining and public utility sectors have had the effect of creating a condition of relative inequality in some sectors of the local economy. Those residents on fixed incomes and those who are bound to other sectors in the local economy that do not readily translate increased profits from energy growth into wage increases are now in a position of greater disadvantage. Higher energy-related wages also have the effect of attracting more workers from local trade and service sectors. While increased opportunities

for employment mobility are beneficial for the local work force, such a condition means that local proprietors are faced with the possibility of higher labor costs to compete with energy development. Higher wages also have the effect of causing status inconsistency where new community members may have higher purchasing power but lower status relative to the rest of the community.

Since local energy development has not attracted significant numbers of minority workers, ethnic divisions were not a factor in the competition for economic resources. Energy development also did not appear to have altered the relative position of women in the local economy.

Local informants also indicated that local residents did not profit greatly from population increases in the county. This contention was held as a point of pride by a number of local merchants who pointed with disdain at merchants in a neighboring county who were charging exorbitant prices to in-migrating workers. That contention was also confirmed by a number of local construction workers interviewed.

5.4 Social Stratification

Social prestige and status in the McLean County area are primarily a function of occupation and length of residence. Agricultural, business, professional and management groups who are linked to long-time area families maintain prestigious positions in the community.

Local churches and clubs seem to exhibit memberships drawn from all sectors of the local population. Social and leisure activities also provide an opportunity to involve people from all walks of life. There does seem to be a tendency for new younger construction families to be less involved in community affairs. This tendency exists despite acknowledged community efforts at integration.

Overall, the historical dominance of agricultural and commercial interests in the class structure, status hierarchies and distribution of power remains largely unchallenged. A number of local informants acknowledged the central role of long-time agricultural families in the community. As one banker put it in reference to bank accounts, "one good farmer (account) was worth 15 construction workers (accounts)."

Chapter VI

Extra-Local Linkages

6.1 Introduction

As development occurs, regions or communities with a history of relative autonomy become more interdependent as their activities become linked to larger regions or the nation. As local activities become more dependent on national commercial markets, subject to increased federal or state regulation, and to ventures controlled by national corporations, then more decisions affecting local affairs are made outside the community. The extent and nature of external linkages can effect a community's ability to influence the process of development and alter the direction or character of change. Political, economic, and social linkages are discussed below.

6.2 Political Linkages

There were very few federal agencies involved in local affairs by virtue of limited government holdings, and no additional agencies have become involved in local affairs during the development phase. In fact, government employment has decreased from 19 percent of all employment in 1975 to 15 percent of employment in 1980 (Table 2-5).

One state agency playing an increasingly important role in McLean County affairs was the North Dakota Coal Impact Office. This office provided funds for the mitigation of impacts related to coal extraction. McLean County is also a member of a Regional Development Council that provides support for coordination and planning on a

multi-county level. Benefits of this Regional Council have thus far not been clearly evident in dealing with energy projects in McLean County. Energy development also reinforced the county's relationship with the Farm Loan Board.

6.3 Economic Linkages

While new commercial and financial enterprises opened during the construction period, almost all of them were locally owned and operated. One notable exception was a branch bank that opened in Washburn.

The power plant and the attendant coal mine in the county are not locally owned. This fact is a possible explanation for the lack of communication between power plant/mine owners and local elected officials. There seems to be no established mechanism for the exchange of information between local officials and power plant owners. Hence, local authorities are somewhat in the dark concerning the plans of power plant/mine owners for growth and expansion. Comments by various local informants also indicated that the power plant owners have not initiated nor seemed willing to participate in the growth management process. Although the power plant now plays a role in the local economy, its role is clearly less than that of dominant agricultural interests.

Interestingly, local influentials indicated that UPA-CPA was not a very good company for communities to work with. Basin Electric (the company that built the power plant in Wheatland, Wyoming) was used as an example of a good company to work with. One specific example used

was that Basin Electric (operating in the next county) loaned the local school in Washburn irrigation equipment to water a newly sodded football field when UPA-CPA's irrigation equipment was idle. (A construction crew working on the four-lane highway near Washburn had donated their time and equipment to grade the new football field.) The main reason given for why Basin was easier to work with was that they were a North Dakota company and sensitive to local needs. (Basin was also perceived as a good company to work with in Wheatland, Wyoming.) The characteristics assigned to Basin Electric from both McLean County, North Dakota and Platte County, Wyoming are as follows:

1. Willingness to communicate and enter into the planning process with communities in the preliminary stages of the project;
2. Corporately responsible for mitigative action for anticipated impacts;
3. Willingness to work with communities in informal ways to solve problems (loan of irrigation system in North Dakota and loan of equipment and men for grading baseball fields in Wyoming).

In comparison to Basin Electric, local influentials felt UPA-CPA was not as cooperative, corporately responsible, and communicative as they would have liked. However, it was felt that Underwood did have some control over UPA-CPA because the coal seam being mined runs under the city and within the three-mile planning radius of the city.

6.4 Social Linkages

Because many in-migrants were actually returning to an area they had lived in previously, external linkages were diminished.

Energy development in McLean County did not seem to bring about increased external social ties. First of all, the historic population make-up has been relatively homogeneous and stable over time. One of the notable characteristics of in-migrating workers was that a great number of them had lived in the area previously. Population influxes were not large and generally overlapped existing social networks.

On the whole, it appeared that energy development had not contributed substantially to an increase in extra-local social linkages in McLean County.

Chapter VII

Community Integration

7.1 Introduction

The concept of integration (coordination/cooperation) has been included in the study of communities for some time. Inherent in this concept are two notions: 1) integrated communities are generally conceived as better, more effective at accomplishing community goals, evaluated more positively by their residents, provide greater access to the decision-making process for different groups, and exhibit a higher level of cooperation among groups; and 2) integrated communities are assumed to be able to manage change better than are communities that are less integrated.

7.2 Political Integration

Cooperation and coordination among local government units in McLean County is evident in a few instances. McLean County participates in a Regional Council for Development along with surrounding counties, with each county being represented by its planner. This body provides support to member counties in the form of planning efforts and coordination of development activities.

McLean County's sheriff also provides contract police services to municipalities throughout the county.

7.3 Economic Integration

The primary integrative mechanisms in the economic sector are

local chambers of commerce. Since employment at the Coal Creek Station during the operational phase does not support the level of economic activity characteristic of the construction phase, some of the surrounding towns have attempted to remedy the economic slowdown. The town of Washburn is in the process of forming a Community Development Commission. The overriding concerns of these groups seem to be: 1) attracting additional industrial growth to the area; and 2) increasing the amount of business generated by local residents with local merchants.

7.4 Social Integration

The relative stability of the other dimensions of community organization (differentiation, stratification, and extra-local linkages) in the McLean County area seemed to support the continuation of relatively well-integrated communities throughout the development period. The task of assimilating in-migrants was made somewhat easier because the relatively small impact was spread among a number of towns, thereby diminishing the size of the impact for any one town. Also, residents of the area welcomed the prospect of a power plant close by and made concerted efforts through local civic organizations (Newcomer's Club, Welcome Wagon, Chamber of Commerce) and churches to assimilate newcomers who were interested in the community. This perception was born out by both long-time residents and relative newcomers. McLean County has numerous active clubs that serve as an integrative mechanism for new residents; these include the Newcomer's Club, Lion's Club, American Legion, American Legion Auxiliary,

Jaycees, Jayceettes, Future Farmers of America, Washburn Civic Club, and the 4-H. All of these, together with volunteer fire departments, bowling leagues, volleyball leagues, and baseball leagues, provide numerous opportunities for in-migrants to establish new ties as well as renew old ones. The town of Washburn hosts an annual celebration, this year entitled "River Boat Days", which involves many community members and is well attended by present county residents, past county residents, and many from the region. The town also has a "Welcome Wagon" to greet newcomers.

Again, the process of assimilation was facilitated because many of the in-migrants were returning to the area or were from the region and, therefore, were already acculturated and acclimated.

Chapter VIII

Indicators of Community Well-Being

8.1 Introduction

When considering indicators of social well-being, it is necessary to keep two important cautions in mind: 1) the frequency of occurrences of many events like suicide or homicide in small communities is often so low that small increases in the absolute number would translate into very large percentage increases; and 2) often times in rural areas it is not unusual to find reporting systems changing partially in response to growth itself. With these cautions in mind, the following sections present changes in indicators of social well-being for residents of McLean County during the period of energy-related growth.

8.2 Behavioral Indicators

8.2.1 Crime

Comments by the county sheriff indicated that while the incidence of some crimes may have increased during the construction phase, the population adjusted rates for some other crimes had actually declined. The sheriff attributed much of the cause of the decrease in rates for some offenses to preventive police measures instituted in the county.

Table 8-1 presents a history of Part I crimes as reported to the FBI for the years 1971 to 1980. First, it is evident that there are very few crimes against persons (homicide, rape, robbery, and aggravated assault) as compared to crimes against property (burglary,

Table 8-1

Incidence and Rate of FBI Part I Offenses for McLean County, 1971 to 1980[1]

Offense		1971	1972	1973	1974	1975	1976[2]
Homicide -	Number	0	0	0	0	0	NA
	Rate	0.00	0.00	0.00	0.00	0.00	NA
Rape -	Number	0	0	0	0	2	NA
	Rate	0.00	0.00	0.00	0.00	0.17	NA
Robbery -	Number	0	0	0	0	0	NA
	Rate	0.00	0.00	0.00	0.00	0.00	NA
Aggravated Assault -	Number	5	5	0	4	5	NA
	Rate	0.43	0.43	0.00	0.35	0.43	NA
Burglary -	Number	25	35	38	35	65	NA
	Rate	2.14	3.02	3.30	3.04	5.65	NA
Larceny -	Number	64	87	73	102	164	NA
	Rate	5.47	7.50	6.48	8.87	14.26	NA
Motor Vehicle Theft -	Number	1	6	5	9	11	NA
	Rate	0.08	0.52	0.43	0.72	0.96	NA
Total Part I Offenses -	Number	95	133	116	150	247	NA
	Rate	8.12	11.46	10.09	13.04	21.48	NA

Table 8-1 (continued)

Offense		1977	1978	1979	1980
Homicide -	Number	0	0	0	0
	Rate	0.00	0.00	0.00	0.00
Rape -	Number	0	0	0	0
	Rate	0.00	0.00	0.00	0.00
Robbery -	Number	0	0	0	0
	Rate	0.00	0.00	0.00	0.00
Aggravated Assault -	Number	5	1	6	6
	Rate	0.38	0.07	0.45	0.49
Burglary -	Number	47	59	30	42
	Rate	3.54	4.32	2.23	3.42
Larceny -	Number	139	173	188	140
	Rate	10.47	12.65	14.00	11.39
Motor Vehicle Theft -	Number	7	11	11	7
	Rate	0.53	0.80	0.82	0.57
Total Part I Offenses -	Number	198	244	235	195
	Rate	14.91	17.85	17.50	15.87

[1]Rates are calculated as number of offenses per 1,000 population.

[2]Not available due to incomplete reporting.

Source: Federal Bureau of Investigation, Uniform Crime Reports, Part I Crimes, 1971-1980.

larceny, motor vehicle theft). No homicides or robberies were reported before or during construction. Only two incidents of rape were reported in 1975, and aggravated assaults were relatively few and constant both before and during construction. The average assault rate was less (.3) for the preconstruction period (1971-1974) than it was for the construction period (.36 from 1975-1980). Larceny, showing the highest incidence, was higher (12.55) on the average during the construction phase (1975-1980) than it was during the preconstruction phase (7.08 from 1971-1974). Burglary and motor vehicle theft also showed higher average rates during construction (1975-1980) than before (1971-1974). The average preconstruction (1971-1974) rate for the total of all offenses was 10.68 while the average construction rate for all offenses was 17.52, indicating that both the incidence and rate of Part I crimes increased.

8.2.2 Mental Health Problems

Mental health admission data for McLean County during the construction period indicates little evidence of any serious increase in mental health problems although there were increases in alcohol disorders and marital adjustments. The suicide rate for McLean County has generally remained low throughout the construction and operation phase (Table 8-2). While county rates sometimes exceed state rates, the small number of incidents in the county do not easily support any general conclusions.

Table 8-2

Incidence and Rate of Suicide for McLean County and the State of North Dakota, 1970 to 1980

	McLean County		State of North Dakota	
Year	Incidence	Rate/1,000 Population	Incidence	Rate/1,000 Population
1970	0	0.00	75	0.12
1971	2	0.17	66	0.10
1972	0	0.00	55	0.09
1973	1	0.09	52	0.08
1974	1	0.09	74	0.12
1975	0	0.00	62	0.10
1976	2	0.16	70	0.11
1977	2	0.15	71	0.11
1978	1	0.07	67	0.10
1979	4	0.30	80	0.12
1980	0	0.00	73	0.11

Source: State of North Dakota, Department of Health, Health Statistics, and Vital Records, 1982.

8.2.3 Alcohol Problems

Alcohol-related disturbances were ranked by residents as the fifth most serious problem anticipated as a result of local development. Arrest reports from the county sheriff's office indicate a large number of alcohol-related offenses during the construction peak, and mental health admissions also indicate a substantial number of alcohol-related admissions during the same period. Information for the post-construction phase indicates the incidence of alcohol-related problems is markedly reduced.

8.2.4 Family Disruption

Crude divorce rates for the construction and post-construction phase of the Coal Creek Station indicate an increase in the rate of divorces per 1,000 population (1.04 in 1975, 1.60 in 1976, 1.80 in 1977, 2.63 in 1978, 2.16 in 1979, and 2.26 in 1980) as shown in Table 8-3. Peaks are also noted in the pre-construction period (1.78 in 1970 and 2.35 in 1973) when the area seemed to be in period of population decline. While divorce rates can reflect underlying instabilities in social systems, the present dearth of information does not support further conjecture. Throughout the period, the divorce rates in McLean County have remained noticeably below the steadily increasing rates for the state as a whole.

8.3 Access to Resources

8.3.1 Per Capita Income

During the construction and operational phases of the Coal Creek

Table 8-3

Incidence and Rate of Divorce for McLean County and the State of North Dakota, 1970 to 1980

	McLean County		State of North Dakota	
Year	Incidence	Rate/1,000 Population	Incidence	Rate/1,000 Population
1970	20	1.78	971	1.57
1971	19	1.62	1,172	1.87
1972	16	1.38	1,289	2.04
1973	27	2.35	1,409	2.23
1974	10	0.87	1,578	2.49
1975	12	1.04	1,706	2.67
1976	20	1.60	1,852	2.87
1977	24	1.80	1,944	2.99
1978	36	2.63	2,065	3.17
1979	29	2.16	2,085	3.20
1980	28	2.26	2,134	3.26

Source: State of North Dakota, Department of Health, Health Statistics, and Vital Records, 1982.

Station, per capita income increased more rapidly in McLean County ($5,725 in 1974 to $9,020 in 1978 and $7,921 in 1979) and remained at a higher level than in North Dakota as a whole ($5,883 in 1974 to $7,635 in 1978 then $7,683 in 1979) as shown in Table 8-3. Some additional jobs became available with relatively high wages as demonstrated by the increases in per worker income. Per worker income in McLean County generally surpassed per worker income at the state level (Table 8-4). The construction and operation of the power plant has not generally resulted in a more diversified economy or in a more diversified export base leading to markedly greater long-term security.

8.3.2 Service Demands and Agency Changes

During the period of rapid growth, demand for some services increased. Increases were evident in the provision of police services, education, and water/sewer services. Most of the funding for service expansion came from state and federal sources in the form of loans or grants. The Farm Home Loan Board and the State Coal Impact Office were particularly fruitful funding sources for McLean County.

The need for police services expanded dramatically during the construction period. The McLean County Sheriff's office had the largest expansion with the addition of staff, patrol cars, a jail addition, and other impact items. New revenue sources were LEAA grants, CETA grants, and coal impact fund grants. The sheriff's office not only provides services to county areas, but also provides

Table 8-4

Per Capita and Per Worker Income for McLean County and the State of North Dakota, 1974 to 1979

Year	McLean County		State of North Dakota	
	Per Capita Income	Per Worker Income	Per Capita Income	Per Worker Income
1974	$ 5,725	$ 9,312	$ 5,883	$ 9,727
1975	6,466	10,466	5,896	9,409
1976	5,585	8,305	5,756	8,723
1977	6,429	10,345	6,092	9,076
1978	9,020	15,711	7,635	11,523
1979	7,921	12,554	7,683	11,040

Source: North Dakota State Employment Service, 1982.

contract services to a number of smaller municipalities and the Coal Creek Station. Large increases in cost of law enforcement generally are due to the total population change stemming largely from the power plant development. The Coal Impact Office also funded several of the new positions for the Sheriff's Department.

Population increases also meant an increase in school-age children in the county. Most schools in the area had sufficient excess capacity to absorb additional students. The Underwood school district, however, required an addition as did the Washburn district.

Water and sewer systems were substandard in both Washburn and Underwood prior to the construction of the Coal Creek Station. With population increases, the water and sewer systems in Underwood and Washburn not only had to be upgraded but also expanded.

Even though McLean County's commercial sector expanded slightly in response to peak construction activity, the operational work force has not been large enough to continue to support all of these new businesses. Some newer businesses have closed with the advent of the operational phase of the Coal Creek Station.

8.4 Perceptions of Community and Attitudes Toward Development

Local residents express strong attachments to McLean County as evidenced by the fact that quite a few families have persisted in the area for a number of years, and many of those who had moved away in past years returned with the recent construction and energy-related employment.

Perceptions of local residents about the development were largely positive, owing to the fact that McLean County did not suffer severe quantitative or qualitative impacts. In 1976 and again in 1977, household surveys were conducted in McLean County to assess local residents' attitudes toward growth. McLean County residents stated a positive belief that economic benefits resulted from development. This level of agreement increased in 1977, indicating that experience with development increased their level of belief in the economic benefits of development. More than 75 percent of the people interviewed in McLean County, in both 1976 and 1977, said they would like a moderate level of growth or more.

In spite of the fact that growth was welcomed by McLean County residents, it appears they believe that the social changes in community life resulting from the building of the power plant were basically negative.

However, county residents stated that social relations in their communities were friendly and positive. These responses were even more positive in 1977, after the power plant had been under construction for two years.

Local residents appear to have enjoyed the moderate doses of prosperity provided by development. Increased employment opportunities have made it possible for more of the children of local residents to remain in the area after the completion of their secondary education. With the completion of the construction phase of the most recent power plant, local leaders have been discussing ways to attract additional development to the area.

Chapter IX

Summary of Major Findings: Washburn, McLean County, North Dakota

Work force impacts of the construction and operation of the Coal Creek Station were moderated by the following conditions: a significant number of local residents with previous construction experience entered the work force; many of the construction workers employed at the Coal Creek Station commuted from permanent residences outside of McLean County; many of those workers who migrated into McLean County were either former residents or residents of the area and, hence, familiar with the communities and the climate; and the nature of the development did not require a large permanent work force.

Even though impacts on local communities were not severe, jurisdictions received little, if any, support from industry in expanding those few areas of public infrastructure where shortfalls did exist.

Dialogue between representatives of the developing industry and local officials was initiated only after political leverage was applied by local leaders. Industry seemed to maintain a rather cavalier attitude toward its responsibility in the growth management process. Local influentials felt a certain amount of powerlessness in forcing industry to mitigate potential impacts.

The impact of the construction and operation phases did not significantly alter the social organization of the local communities. In the most general sense, energy development was viewed as having

caused no serious harm to the local area while not providing a positive economic stimulus. A majority of local citizens would probably vote to accept another such development.

The growth management process could be improved by the more active participation of industrial developers, including their willingness to accept financial responsibility for project-related impacts in anticipation of projected growth, improved permitting requirements that allowed local residents more voice in controlling their future, and a taxing mechanism that would produce project-related revenue in the early phases of development when it is needed most.

Footnotes

1 Martin and Hanson, "Geological Survey Water Supply Paper 1838", Reservoirs in the United States, 1966, p. 77.

2 Toman Engineering Co., "Comprehensive Plan for Water and Sewer Development", McLean County, N.D., December, 1969.

3 Statement by Walt Bailey, State Historian, personal interview, North Dakota State Historical Society, August, 1976.

4 James G. Thompson and Robert L. Kimble, Socioeconomic Longitudinal Monitoring Project, Final Report, Volume II - McLean County Profile. Prepared for Old West Regional Commission by Institute for Policy Research, University of Wyoming, June, 1979.

5 James S. Wieland and F. Larry Leistritz, Profile of the Coal Creek Project Construction Work Force. Fargo, North Dakota: North Dakota State University, Agricultural Experiment Station, Department of Agricultural Economics, February, 1978. [Agricultural Economics Miscellaneous Report No. 33.]

APPENDIX A

APPENDIX A
Example Interview Guide

A.1 Agency Interviews

A.1.1 Interviews with Service Agencies
(school, social services-welfare, law enforcement, public health, mental health, judge if possible)

A.1.1.1 Schools

1) Introduce yourself and explain purpose -- want to know how community addressed each of the needs that occurred during period of rapid growth (or last five years).
2) Review population data and causes of growth.
3) Review school data (have copy ready for them)
Make any corrections/additions or comments. If data not available locally, find out where it would be.
4) How has demand changed? Why? (esp. energy growth)
5) Has classroom space been adequate and available when needed to meet demand? If not, when was problem period? Why was there the problem? How was it resolved?
6) What important changes have occurred in the area of . . .?
Was that a problem? How were problems addressed? What are concerns for future?
   -- curriculum/education approach
   -- student behavior and characteristics - probe esp. for transiency (check availability of turnover rates)
   -- administrative procedures
      - any special programs for newcomers
      - any special problems created by newcomers
      - any changes due to growth
   -- financing
7) What school-related changes or issues have there been that drew public interest or participation? (e.g., consolidation, new school construction, etc.) Point is to articulate public decision-making process. What are concerns?
   -- Who, when, what, how, why. Who were the parties involved?
   -- Who was not involved who logically should have been?
   -- If there were factions, identify issue and probe for recurrence and for names of prime actors on both sides.
   -- Was there a point when problems started being addressed in a new way? When? Why?
8) At the beginning of the growth period (or 10 years ago), who were the influentials in the community?

-- How has that changed? What was energy development's role? Who were key decision-makers for community during growth period?

9) Check for changes in extra-local linkages (source of funds, contacts, source of teachers in-service, etc.)

10) In their opinion, were there groups in the community that have been (or would be) affected differently by the growth and energy development?
-- Both positive and negative
-- Who, how and why (seek mechanism and understanding of change and community structure that distributes effects/opportunities)
(prompt for employment, housing, services, schools, way-of-life)

11) Functional groups and social differentiation:
-- try to get a description of criteria for social differentiation (in pre-growth period if there was one) and of each of the major groups (size, livelihood, geographic location, ethnicity, property ownerships, relationships between groups) How has that changed? (Criteria, groups or group characteristics). The purpose is twofold: (1) to describe structural/organization characteristics of community and (2) to identify attributes of groups that could influence distribution of project effects. Get names of group representatives. (Important for interviewing but also to illustrate familiarity with different strata.)

12) Demographic characteristics of respondent
-- position and history of employment
-- length of residence in community
-- where from
-- family characteristics
-- age
-- sex
-- relationship to energy development

A.1.1.2 Law Enforcement

1) Introduction
2) Review growth data
3) Review Part I and Part 2 crime and service provision
-- reported crime
-- calls for service
-- budget
-- uniformed officers and personnel
-- cars
4) Did crime and/or calls for service increase during growth period? What are expectations?
-- what types of crime(s)
-- who were (will be) perpetrators?
-- who were (will be) victims? Did (will) crime occur in particular neighborhoods/areas?

-- what do they think was (or will be) reason for change?
-- (Sheriff, what about specific county problems -- trespass, poaching, cattle rustling, etc. what is county people's view?)

5) Service provision
-- Were (will personnel and equipment (be) adequate? If not, when was it inadequate? Why was it inadequate?
-- What important changes have occurred (or are anticipated) in their department?
- staff
- administrative procedures
- manner of enforcement
- source of financing

6) What law enforcement changes (or issues) have there been that drew public interest or participation? (e.g., new jail, consolidation of enforcement) Object is to articulate public decision-making, and to discuss sequence of response by community and leaders re: energy-related demands)

7) At beginning of growth period, who were the influentials? How (and when) did that change? What was role of energy development?

8) Check for changes in extra-local linkage.

9) Ask about groups and distribution of growth effects to different groups. Check especially for relationships among groups. Ask if they know representatives from each group that could be interviewed.

10) If appropriate, ask personal interview questions:
-- position and history of employment
-- length of residence in community
-- where from
-- family characteristics
-- age
-- sex
-- relationships to energy development

A.1.1.3 Social Service/Public Assistance and Mental Health

1) Introduction

2) Review growth patterns and causes

3) Review agency data structure of agency
-- by type of assistance: total annual expenditures; expenditures per 1,000 population; caseloads; staff levels

4) How has demand for service changed? Why? Change in use patterns by long-time residents? Why? Different use patterns by newcomers? Why? How are these reflected in the data?

5) Have staff and resources been adequate and available when needed to meet demand? If not, when was problem period? Why was there the problem? How was it

resolved? Have they received adequate support from state?

6) What important changes have occurred (or are anticipated) in the areas of . . . What is their view on source of change? Any data?
   -- child abuse and neglect
   - marital discord, spouse abuse, divorce
   -- alcoholism

7) What public service/assistance-related changes or issues have there been that drew public interest or participation? Describe outcome, how does that fit into overall decision-making pattern in community? Was there a point (in growth period) when decisions started being made in a new way or by different people?

8) Who were influentials at beginning of growth period? How has that changed? What was energy development's role? Get names of really key individuals re: community actions.

9) What distinguishable groups are there in the community? What are criteria for social differentiation? What are distinctive attributes of each group? How would one characterize relationships between groups? What about prior to growth? (Any particular neighborhoods?) Names of people who could discuss each group.

10) Have groups been affected differently by growth? Especially energy development? What about inflation? How have effects of energy development been distributed among groups? How has that occurred?

11) Demographic characteristics of respondent
   -- position and history of employment
   -- length of residence in community
   -- where from
   -- family characteristics
   -- age
   -- sex
   -- relationship to energy development

A.1.2 Group Representatives/General Population

A.1.2.1 Introduction

A.1.2.2 Personal Biography

1) Background (family, where lived)
2) When came to community
3) Educational history
4) Occupational history, esp. during 1970's
   -- occupational mobility/immobility
   -- energy-related employment - how did (would) they get it? entrepreneurial - ask about financing, business style and expansions
5) Housing - price or availability

6) Family history - school and employment history of spouse; school experience of children
7) Service provision - any problems? evaluation -- compare predevelopment with now.
8) What recreational/social activities available and used; compare predevelopment (or future) with now.
9) Who are their friends, occupation - length of residence, location - how did they become friends? Change during study period?
9a) Who are their children's friends?
10) How were friends affected by development?
11) How about others in the community? What other groups do they see? Were any affected differently? How?
12) Have newcomers been accepted as part of the community? Examples of interaction between long-time residents and newcomers; between various groups.
13) How do they feel they personally have been affected (or anticipate)?
14) How do they feel their neighborhood has been affected (or anticipate)?
15) If parents are in community, how have they been affected (or anticipate)?
16) What changes have occurred in the community (or anticipate)? What effects have there been from energy development (or anticipate)?
-- change in decision-making
-- change in orientation/focus
-- sense of vitality
-- sense of community purpose
17) General satisfaction with expected changes
18) If good spokesperson for their group
-- profile of group predevelopment
- livelihood
- size
- location (residential)
- property ownership
- demographic characteristics
- special needs
- intergroup relationships
- position in community and relationship with other groups
-- distribution of effects
- employment and income
- size
- demographic characteristics
- housing
- facilities/services
- decision-making
- relationship with others
-- profile now

A.1.3 Decision-Maker Interviews

The purpose of these interviews is to describe the evolution of community-level response to the demands of growth. In addition to this description, the purpose is to be able to determine how pre-growth community and decision-making characteristics influenced (or will influence) the response pattern and how the modification of the decision-making process has affected (will affect) community-level decision-making both during and after rapid growth. Of particular interest is the role and utilization of legislation, especially legislation developed for impact mitigation.

1. Introduction
2. Review chronology and source of growth (complete Figure 3)
3. Rapid growth creates some major needs and changes in a community. Discuss how the community addressed some of the major ones. Ask about ones already identified, but pursue others they identify.
   1) Schools
      -- Building new facilities -- how did votes come out on major bond issues? Why? Were they able to raise adequate funds? What were problems? Why did they occur? How were they addressed? Who? Were they solved? Will they occur again next time? What role did state actions/legislation play in response?
      -- How did response evolve over study period? How did the changes affect how things are done now? Was there a point when decisions or community response was approached in a new or different way?
   2) Housing
      -- How did housing response occur? How was it coordinated? What were the problems? (probe financing and zoning and legislation) Why did they occur? How were they addressed? Who? Were they solved? Will they recur next time? Role of state actions-legislation
      -- How did response evolve over study period? How do the changes that occurred affect how things are done now?
   3) Planning and zoning
      -- How and when did formal planning and zoning get started and staffed?
      -- What role did it play throughout the study period?
      -- What were problems? or key decisions?
         - How did they occur?
         - How were they addressed - by whom?
         - Were they solved or will they recur?
         - What role did legislative actions play?
         - How did response evolve over time? What use was made of legislation? Where did initiative come from? Was there resistance?
   4) Public works - discuss major decisions as above
   5) Law enforcement - as schools

6) Animal control - What have they done? How and why? How successful?

7) Review how and when state acts designed to assist with the impacts of energy growth have been used. How important have they been? (e.g., for Wyoming: (1) sales tax (2) farm loan board (3) joint power acts (4) industrial siting (5) severance tax)

8) In respondent's opinion, how much local control has (will) the community been (be) able to exercise over the important decisions and actions that affected it during growth period?
   -- was prewarning adequate and accurate (information)?
   -- cooperation from project sponsor? Describe how and why
   -- was uncertainty about reality of development a problem? How, why?
   -- been able to work with state in handling problems?

9) Clarify their perception of the role and importance of state involvement and of large non-local corporate involvement in the community economy/affairs who initiated? What effect now? Future?

10) How has (will) the political leadership and government structure in the community changed? regarding city council, county commission, county chairman of political parties?
   -- Have there been any changes as a direct result of energy development?
   -- Any that are particularly important to community's response or ability to respond?
   -- Have companies participated? How?
   -- Have (will) community leaders been (be) willing to address problems and take action? Why not, what was (will be) impediment?
   -- Has (will) conflict of interest been (be) important in shaping community response, either in terms of actions taken or public trust/community support?

11) If business person or banker:
   -- Was there (is there anticipation of) a shortage of financing for either businesses or consumers during the study period? Why? How was (will) it (be) addressed? What effect did (will) it have? Where do locals bank?
   -- Has banking structure in the community changed? In what way? Why?
   -- Did banking policies and practices change during the study period?
   -- What role, if any, did energy companies play in banking, local (vs. non-local) businesses?

12) Demographic characteristics
   -- occupation and previous employment history
   -- length of residence in community
   -- origin

-- family characteristics (including other relatives)
-- age
-- sex
-- relationship to energy development

13) Check to see if they feel any pertinent information has been neglected

14) Names of other people to talk to
-- influentials
-- group representatives
-- administrative leaders

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